

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An electrode for a secondary electrochemical cell comprising a silicon nanofilm or a lithium alloy thereof, wherein the silicon nanofilm or the lithium alloy thereof ~~is not greater than about 200 nm~~ has a thickness selected over the range of 100 nm to 200 nm.
2. (Original) The electrode of claim 1, wherein the silicon nanofilm alloys with lithium at ambient temperature.
3. (Previously presented) The electrode of claim 1, wherein the lithium alloy has a theoretical stoichiometry Li_xSi , and x is at least 2.1.
4. (Cancelled).
5. (Cancelled).
6. (Currently amended) The electrode of claim 1, wherein the silicon nanofilm is ~~substantially~~ amorphous.
7. (Original) The electrode of claim 1, wherein the silicon nanofilm is synthesized by physical vapor deposition.
8. (Withdrawn) A electrode for a secondary electrochemical cell comprising a silicon nanoparticle or a lithium alloy thereof, wherein the diameter of the silicon nanoparticle is not greater than about 50 nm in diameter.
9. (Withdrawn) The electrode of claim 8, wherein the silicon nanoparticle alloys with lithium at ambient temperature.
10. (Withdrawn) The electrode of claim 8, wherein the lithium alloy has a theoretical stoichiometry Li_xSi , and x is at least 1.05.
11. (Withdrawn) The electrode of claim 8, wherein the silicon nanoparticle has a crystalline domain.

12. (Withdrawn) The electrode of claim 8, wherein the silicon nanoparticle is synthesized by inert gas condensation and ballistic consolidation
13. (Withdrawn) An electrode for a secondary electrochemical cell comprising nanostructured silicon or a lithium alloy thereof, wherein the electrode does not comprise carbon black.
14. (Withdrawn) The electrode of claim 13, wherein the silicon nanofilm alloys with lithium at ambient temperature.
15. (Withdrawn) The electrode of claim 13, wherein the specific capacity is at least 1000 mAh/g.
16. (Withdrawn) The electrode of claim 15, wherein the specific capacity is at least 2000 mAh/g.
17. (Withdrawn) The electrode of claim 13, wherein the cycle life is at least about 20.
18. (Withdrawn) The electrode of claim 13, wherein the specific capacity at 100C is at least about 2/3 of the specific capacity at C/4.
19. (Withdrawn) The electrode of claim 13, wherein the nanostructured silicon comprises a silicon nanoparticle.
20. (Withdrawn) The electrode of claim 13, wherein the nanostructured silicon comprises a silicon nanofilm.
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Previously presented) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein the anode comprises the silicon nanofilm or the lithium alloy thereof of claim 1.
27. (Cancelled).

28. (Original) The secondary electrochemical cell of claim 26, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.

29. (Withdrawn) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein the anode comprises the silicon nanoparticle or a the lithium alloy thereof of claim 8.

30. (Withdrawn) The secondary electrochemical cell of claim 29, wherein the silicon nanoparticle is synthesized by inert gas condensation and ballistic consolidation.

31. (Withdrawn) The secondary electrochemical cell of claim 29, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.

32. (Withdrawn) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein
the anode comprises nanostructured silicon or a lithium alloy thereof, and
the anode does not comprise dispersed carbon black.

33. (Withdrawn) The secondary electrochemical cell of claim 32, wherein the nanostructured silicon comprises a silicon nanoparticle.

34. (Withdrawn) The secondary electrochemical cell of claim 32, wherein the nanostructured silicon comprises a silicon nanofilm.

35. (Withdrawn) The secondary electrochemical cell of claim 32, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.

36. (Previously presented) The electrode of claim 1 wherein the silicon nanofilm is a contiguous nanofilm.

37. (New) The electrode of claim 1 wherein the silicon nanofilm comprises both crystalline and amorphous domains.

38. (New) An electrode for a secondary electrochemical cell comprising a silicon nanofilm or a lithium alloy thereof, wherein the silicon nanofilm or the lithium alloy thereof is not greater than about 200 nm thick, said electrode having a reversible specific capacity of at least 2000 mAh/g.

39. (New) The electrode of claim 48, wherein the silicon nanofilm alloys with lithium at ambient temperature.

40. (New) The electrode of claim 48, wherein the lithium alloy has a theoretical stoichiometry Li_xSi , and x is at least 2.1.

41. (New) The electrode of claim 48, wherein the silicon nanofilm or the lithium alloy thereof is not greater than about 100 nm thick.

42. (New) The electrode of claim 48, wherein the silicon nanofilm is amorphous.

43. (New) The electrode of claim 48, wherein the silicon nanofilm is synthesized by physical vapor deposition.

44. (New) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein the anode comprises the silicon nanofilm or the lithium alloy thereof of claim 48.

45. (New) The secondary electrochemical cell of claim 54, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.

46. (New) The electrode of claim 48 wherein the silicon nanofilm is a contiguous nanofilm.

47. (New) The electrode of claim 48 wherein the silicon nanofilm comprises both crystalline and amorphous domains.

48. The electrode of claim 48, wherein the electrode has a reversible specific capacity of at least 2500 mAh/g.

49. (New) The electrode of claim 48, said electrode having an average capacity loss per cycle of 0.3% or less for cycles greater than 20.